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(54) Method and apparatus for producing "personalized" video games using CD discs.

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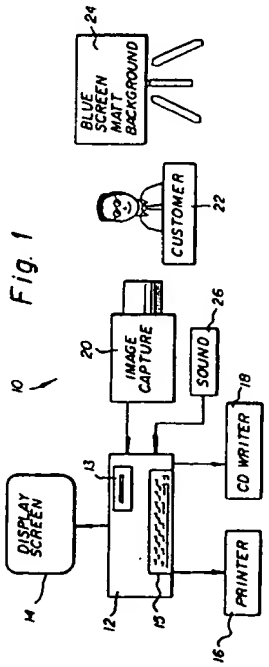

Fig. 1

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Field of Invention

The present invention is related to the field of interactive video entertainment systems and more specifically to a system which permits a user to incorporate personalized information into "authored" software.

Background Of The Invention

Video games are a very popular form of entertainment. The latest high-end video games use CD discs to provide the game software. The quality of the graphics of these games is increasing rapidly, to the point where the characters and backgrounds portray people and places realistically rather than as cartoon-like block figures. As the graphics become more realistic, the users of video games will be interested in games which allow them to become more a "part of the action". The appeal of a "personalized" video games would be a greater sense of affinity to the game and a higher level of immersion of the users into the game environment. What is needed is a method and apparatus for easily and economically creating such "personalized" video games.

Summary Of The Invention

One embodiment of the invention calls for compact disc having recorded thereon an authored segment of data created from graphics and control information, and a personalized segment of data. The authored segment of data may represent a video presentation such as a video game.

More specifically, in a preferred implementation of this invention there is provided a means for producing "personalized" interactive entertainment, where a video game customer can use their own personal images as part of a video game. For example, a "cut-out" of their head may be used as the main character in the game, or a photo of their community may be used as a background for the game action. In one scenario of the invention, the customer goes to a store which creates the personalized video disk, and chooses the type of game they would like to purchase. The "cut-out" face images are produced by taking electronic photos of the customers in front of a blue screen background using poses pre-assigned for the particular game. Brief audio segments (from scripts for the particular game) and text (such as the players' names, birthdays, etc.) are optionally recorded, along with background images (such as favorite location photos or photos of the town where the store is located). These images and associated data can be obtained from a variety of sources including but not limited to, Kodak's Photo CD discs, scanned prints or negatives, video tape, digital cameras, or other forms of digital images or data. The personalized images and audio segments are automatically integrated into the game software and recorded onto a CD disc. To minimize the required recording time, the game software itself can be pressed into the disc during a premastering process. In this case, only the personalized data needs to be written to the disc. Prints incorporating the personalized images and/or data into the game cover artwork are made for the front and back of the jewel box which stores the CD disc.

From the foregoing it can be seen that a primary object of the present invention is to provide an interactive entertainment system that incorporates personalized images.

It is another object of the present invention to provide a video system that utilizes a storage medium having integrated personalized data and generalized game data.

Another object of the present invention is to provide a personalized video game.

Yet another object of the present invention is to provide personalized images in a multi-resolution format for use in video display and for printing.

The above and other objects of the present invention will become more apparent when taken in conjunction with the following description and drawings wherein like characters indicate like parts and which drawings form a part of the present invention.

Brief Description Of The Drawings

Figure 1 illustrates in block diagram form one arrangement of a system for implementing the method of the present invention.

Figures 2A and 2B, illustrate the difference between a typical non-personalized displayed character image and a "personalized" displayed character image.

Figure 3 is a diagram of the CD disc which contains a pressed area containing the "authored" part of the software for a video game, as well as a laser-written segment containing the personalized data part.

Fiure 4 illustrates an alternate system configuration in which a writable-CD contains only personalization images and data while the other CD discs contain the "authored" game software.

Figure 5 is a flow chart depicting one of the methods of the present invention.

Figure 6 is a flow chart depicting another method of the present invention.

Detailed Description Of The Invention

Referring to Figure 1, one arrangment for a system 10, that is adapted for location at a retail establishment such as Blockbuster Video is shown with a processor 12, an integrated CD disc reader 13, and a keyboard 15. Additionally, there is provided a display screen 14 for viewing images and text, a printer 16,

for printing outputs from the processor 12, a CD disc writer 18, an image capturing means 20 and optionally, a sound source 26, such as recorded background music, recorded speech, or other sound affects. Text may also be entered, by a keyboard 15 or by connection of the processor to other sources of digital text and or image information such as by connection to a MODEM, local area network, or even converted analog from RF or other like transmissions. The image capture means 20 functions to capture images such as the image of a customer 22 positioned against a blue screen matt background 24. The image capturing means optionally can be an electronic camera which provides digital images, either directly to the processor 12 or to an intermediate storage media such as a disc or tape that can be read into the processor 12.

In operation, a customer who decides to purchase a new personalized video game contacts a store operator. The store operator determines from the customer's selected game the corresponding personalization plan. The plan may be printed in an instruction book or recorded in electronic form on an instruction disc which can be accessed through the processor 12. The instructions may direct the operator to, for example, take four different poses (front and side views as well as different facial expressions) of up to two people in the customer's party, as well as enter their names and other information which might be relevant to the game (for example, their favorite car models and colors for an auto race game). The customer stands in front of the blue screen matt background 24 and the photos are taken using an electronic camera (such as a Professional DCS 200 Digital Camera System from Eastman Kodak Co.) The customer's voice may also be recorded saying a few key audio segments (like "I'm a winner!" for an auto race game). The electronic images are processed (to extract the head view and to delete the blue background) and converted to the proper graphics format used by the game software. For example, the customer's face may be stored as a graphics file which can be pasted into the cockpit of the race car, or onto a driver in a racing uniform receiving a trophy, at the appropriate point as the game is played.

Figures 2A and 2B, illustrate the difference between a typical character display (2A) from a "non-personalized" video game and a "personalized" video game (2B).

The main requirement of the personalized data is to get it into a form that the processor can work with. In almost all instances the data needs to be in digital from, as the processor 12 of choice, will be a digital computer, such as a PC computer. Other original image formats to be supplied to the processor 12 could be personal photos provided by the customer, which might be available as Photo CD still images, scanned images from negatives, transparencies, or prints. One example is a personalized puzzle game, similar to the non-personalized puzzle currently available as a CD-I video game. In the non-personalized version, the user has the choice of 64 still images of animals, places, etc. In the personalized version, the user would choose among their own images, which would make the puzzle much more appealing.

Once the personalization information is complete, it is written onto a writable-CD disc using a format appropriate for the video game player. For the CD-I puzzle game example, the CD-I format would be used. This personalization information must at present be written at the store, using a standard CD writer due to the cost of a CD writer. The "authored" portion of the video game software, which controls the game action and creates all of the non-personalized graphics, can either be written at the store or can instead be "pressed" into the disc when the CD disc is manufactured. At the present time interactive discs that are particurlary adapted for use with this system are called CD-I discs. The in-store recording time (and, therefore, the time needed to complete each customer transaction) can be greatly reduced when the "authored" material is prepressed. However, it may also be the case that in the interest of not degrading the speed of the video games graphics generation, the authored segment and the personalized segment may require more integration. In this case, the processor 12 can merge the personalized information with the authored information (which can be read from a pressed disk in reader 13) and write all the merged information onto the CD disk by the writer 18.

If the size of the software for the games is a small fraction of the capacity of the disc (approximately 600 MBytes), the pressed discs might contain the software for multiple games. The personalization information could include an access code word indicating which of the various games the customer had purchased so as to limit access to only the purchased software.

As personalization information is provided to the processor 12 it may be written to a disc and/or hard-copy prints can be produced by a printer, such as a Kodak 450GL thermal printer, and inserted in the front and back of the "jewel case" used to store the CD disc. Prints for both the game cover artwork and the personalized photos are thus made available to the customer. The game cover artwork and the personalized photos may combined into a single print. For the auto race example, they might include the customer seated in their favorite make and color race car on the front, and receiving the Indy 500 trophy on the rear.

In addition to the personalized image data used for the generation of video displays by the game software, personalized image data at a higher resolution can also be stored in the personalization segment of the disc. This higher resolution data can then be accessed in order to generate an image to be printed,

as opposed to the lower resolution data used for video display. For example, an image of the winning car in an auto race could be shown crossing the finish line next to a personalized image of the car's driver and a timer indicating the winning time for the race.

Figure 3 illustrates one arrangement for a hybrid disc 30 which contains a pressed area 32 containing the "authored" part of the software for the game, as well as a laser-written segment 34 containing the personalization information.

Figure 4 shows an alternate embodiment of the invention wherein a first CD disc 42 is a writable-CD which contains only personalization images and data, while the other CD discs 44 are pressed CD's containing authored game software. The player 40 includes a digital memory 46 which stores the personalization information when the first CD disc 42 is inserted. Next, the first CD (personalization) disc 42 is removed and one of the game software discs 44 is inserted. The game now uses the stored personalization information (graphics, images, and/or audio segments) as the game is played. If no stored personalization information is present, the game uses standard pressed fictional players and audio segments from the pressed CD disc. As an alternative embodiment, the player 40 is provided with a CD reader 50 and a cartridge 48 or two CD readers, for providing the personalization information. The two readers would allow both the pressed disc and personalization disc to be available for reading simultaneously. Alternately, the personalization information could be stored in a non-volatile memory (i.e.: Flash EPROM) memory in a video game cartridge, which would be used with a pressed game disc.

Refering to Figure 5, with the process illustrated the type of personalized data that is required by the authoring software is determined and the data required to proceed is acquired from the necessary sources. As previously discussed the personalized data may be derived from negatives that are scanned and converted to digital images, from electronic cameras, or any other form of digital image that contains the image that is to be incorporated into a video presentation or game. The digital image data is processed by removing all of the information that is not necessary to represent, for example, the head of the customer. The processed data is then written to a recording media, such as a CD disc and to a hard copy printer with the resultant hard copy being, in one application, used with the case for the CD disk to provide an index of the personalized images that are incorporated in the game.

In Figure 6 the flow starts with data that represents both the personalized and authored portions of the game. The representation may have the data intermixed at the correct spots or all of one type of data may be separate from the other. The video processor receives the data and causes the execution of the game on a video display. At any selected time during play a hard copy of the displayed image may be made. This may involve generating a version of the displayed image at a higher resolution or a different aspect ratio in order to best match the hard copy output capability.

The hybrid disc 30 (illustrated in Figure 3) is manufactured by RICOH corporation. The format for writing and reading such a disc is set out in the "Orange Book" which is an industry standard established by Sony and Philips.

While there has been shown what are considered to be the preferred embodiments of the invention, it will be manifest that many changes and modifications may be made therein without departing from the essential spirit of the invention. It is intended, therefore, in the annexed claims, to cover all such changes and modifications as may fall within the true scope of the invention.

Claims

1. A compact disc having recorded thereon an authored segment of data created from graphics and control information, and a personalized segment of data.

2. A method of forming a personalized video game comprising the steps of:
   storing a video game having at least one character;
   storing a plurality of personalized images;
   reading and executing the stored video game; and
   accessing and combining selected personalized images with said at least one character to form a personalized character; and
   displaying said personalized character.

3. A method of forming a personalized video game comprising the steps of:
   storing a video game having at least one character;
   storing a plurality of personalized images;
   reading and executing the stored video game;
   accessing and combining selected personalized images with said at least one character to form a personalized character;
   storing said personalized character; and
   accessing and displaying the stored personalized character.

4. A method of forming a personalized video game comprising the steps of:
   storing a video game having at least one character;

storing a low and a high resolution digital image of a person;

reading and executing the stored video game;

accessing and combining said low resolution digital image with said at least one character to from a personalized character; and

displaying said personalized character as a representation of the person; and

accessing and combining said low or said high resolution digital image with said at least one character for driving a printer when a hard copy print is desired.

5. A method of forming a personalized video game comprising the steps of:

a) providing a video game having at least one character that appears during game play;

b)providing a pose of a person derived electronically from the person; and

c)combining the pose of the person with the at least one character to form at least one personalized character that is displayed as the video game is played.

6. A system for forming a personalized video game comprising:

means for storing a video game having at least one character;

means for storing a plurality of personalized images;

means for reading and executing the stored video game; and

means for accessing and combining selected personalized images with said at least one character to form a personalized character; and

means for displaying said personalized character.

7. A system for forming a personalized video game comprising:

means for providing a video game having at least one character that appears during game play in different poses;

means for providing a number of different poses of a person derived electronically from the person; and

means for combining the poses of the person with corresponding character poses to form a personalized character that is displayed as the video game is played.

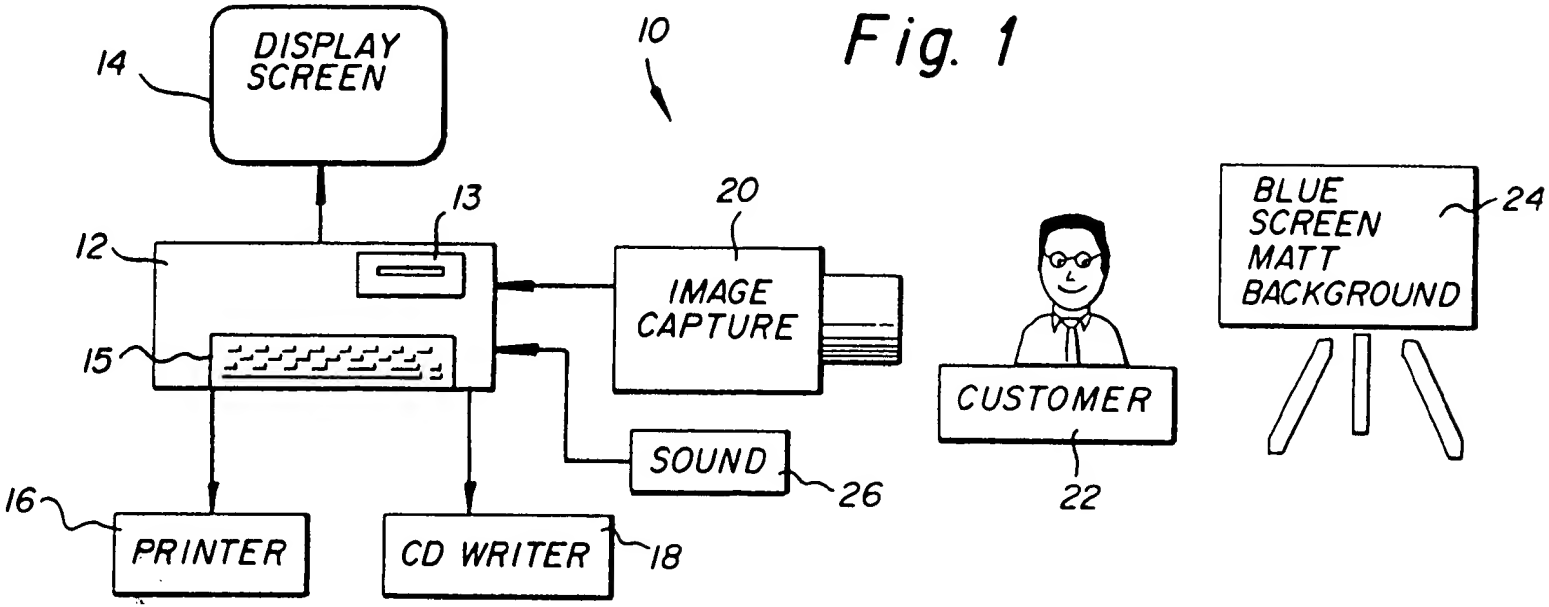

Fig. 1

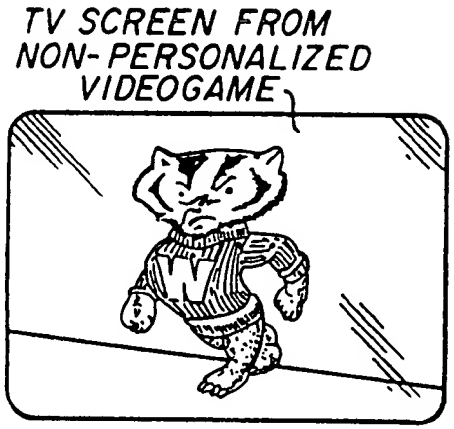

Fig. 2A

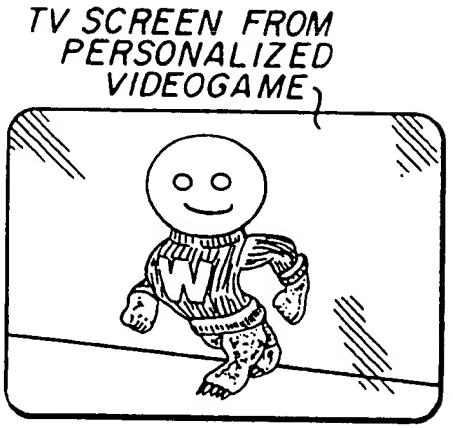

Fig. 2B

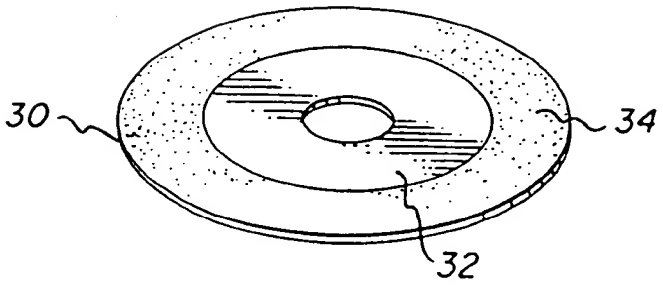
30
34
32

Fig. 3

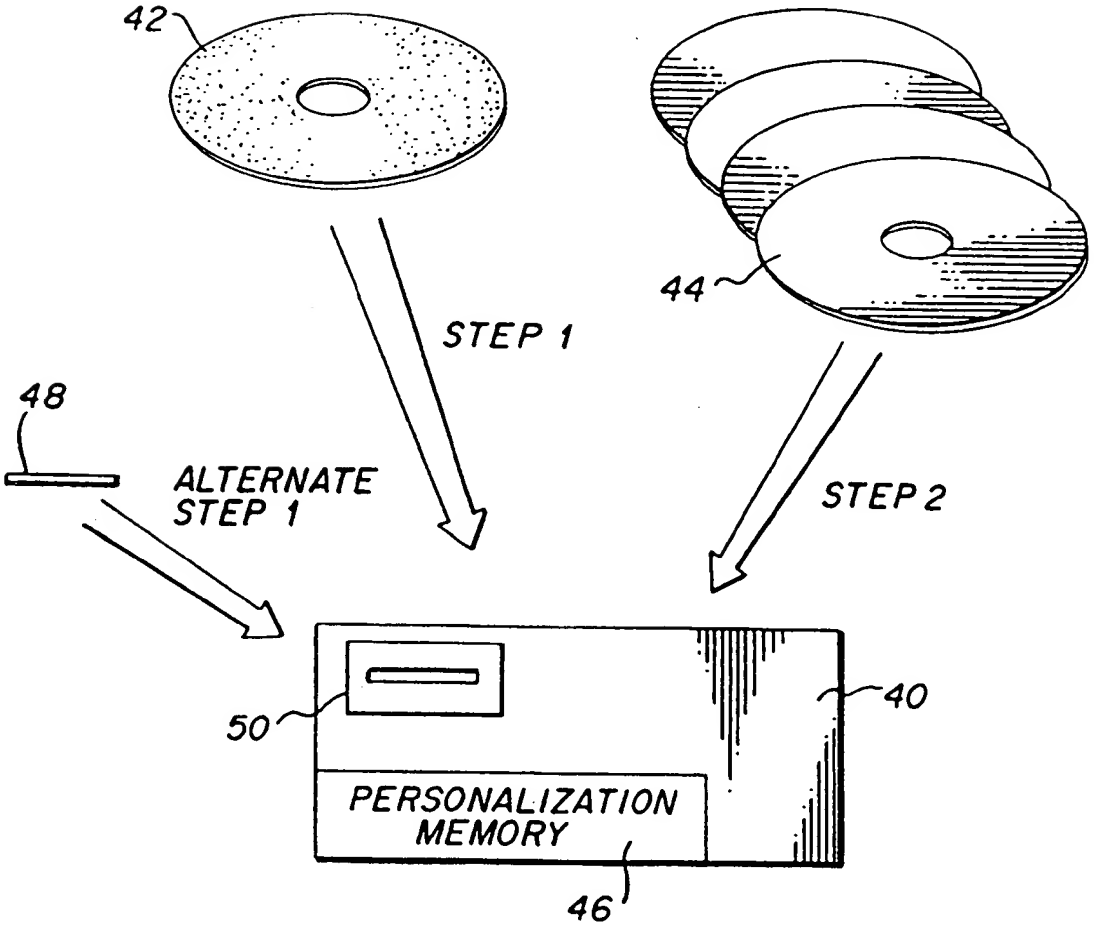
42
44
STEP 1
48
ALTERNATE STEP 1
STEP 2
50
40
PERSONALIZATION MEMORY
46

Fig. 4

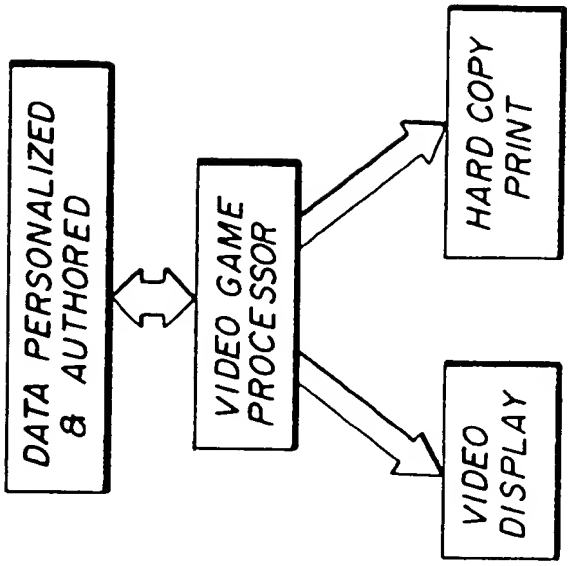
DATA PERSONALIZED & AUTHORED
VIDEO GAME PROCESSOR
HARD COPY PRINT
VIDEO DISPLAY

Fig. 6

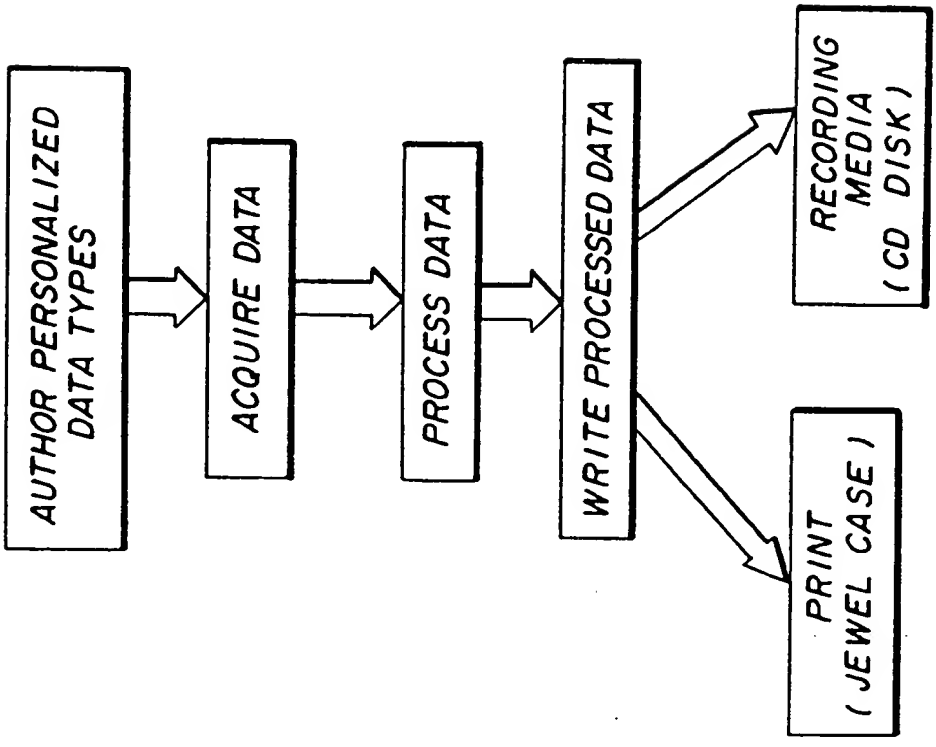
AUTHOR PERSONALIZED DATA TYPES
ACQUIRE DATA
PROCESS DATA
WRITE PROCESSED DATA
RECORDING MEDIA (CD DISK)
PRINT (JEWEL CASE)

Fig. 5

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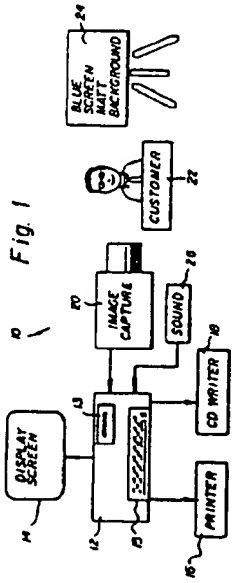

Fig. 1

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European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 42 0366

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	J. M. PRESTON 'Compact Disc-Interactive A Designer's Overview' November 1988 , KLUWER TECHNICAL BOOKS , DEVENDER, THE NETHERLANDS * page 21, paragraph 2 * * page 21, paragraph 6 * * page 32, paragraph 1 - paragraph 3 * * page 39 * * page 88 - page 92 *	1-7	G06F19/00 A63F9/22
Y	US-A-4 710 873 (BRESLOW JEFFREY D ET AL) 1 December 1987 * the whole document *	1-7	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)
G06F
A63F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	16 August 1995	Daskalakis, T

CATEGORY OF CITED DOCUMENTS

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L : document cited for other reasons

& : member of the same patent family, corresponding document

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